



### Panchagavya in Organic Crop Production

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Panchagavya is an organic product produced by using five different by-products of cow like cow dung, cow urine, cow milk, cow ghee, cow curd and other ingredients. It has the potential to play the role of promoting growth and providing immunity in plant system thereby confers resistance against pest and diseases. Panchagavya contains several nutrients i.e. macronutrients like N, P, K and micronutrients which are required for the growth and development of plants and also contains various amino acids, vitamins, growth regulators like Auxins, Gibberellins and also beneficial micro organisms like pseudomonas, azatobacter and phosphor bacteria etc.

#### Introduction

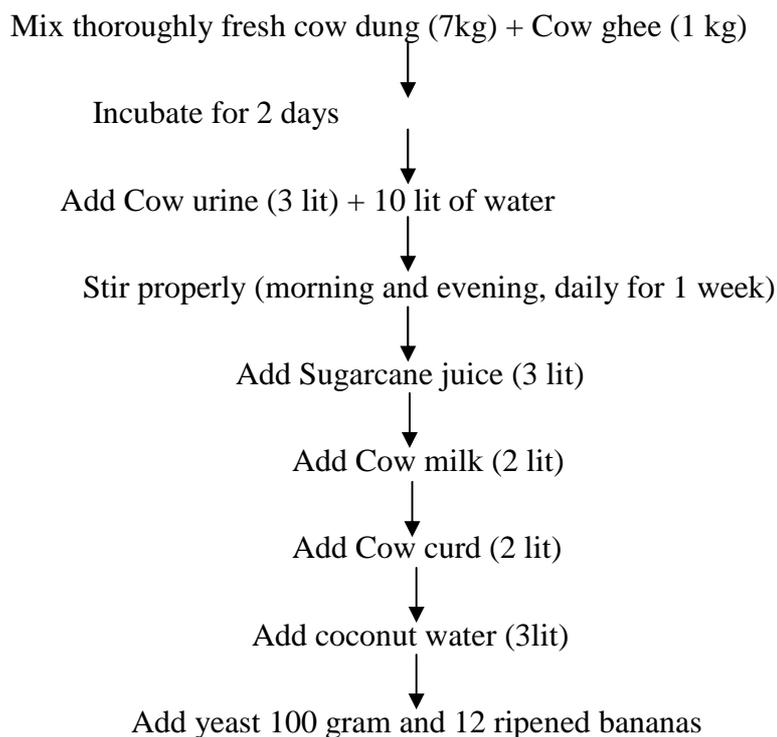
Organic agriculture is a comprehensive production management system which promotes and enhances health of agro-ecosystem, including bio-diversity, soil biological activity and biological cycles. It gives importance to the use of management practices particularly those of off-farm inputs, taking into account that regional conditions require locally adapted systems.

Panchagavya is a special preparation made from five by-products of cow along with certain other ingredients, has the potential to play the role of promoting growth and providing immunity in plant system. Panchagavya plays a major role in organic farming.

Ingredients used for preparation of panchagavya are,

Fresh cow dung	-	10 kg
Cow urine	-	10 lit
Cow milk	-	2 lit
Cow curd	-	2 lit
Cow ghee	-	1 kg
Tender coconut water	-	3 lit
Sugarcane juice	-	3 lit
Ripened banana	-	12 numbers
Yeast	-	100 gm

Sugarcane juice and coconut water are used to accelerate the fermentation which also help in minimizing the bad odour.

**Protocol for Panchagavya Preparation**

The whole mixture is to be incubated for two weeks and the preparation should be filtered through double layered muslin cloth and stored in bottle under refrigerator and used as and when required.

**Dosage of Panchagavya recommended for field application**

**Spray system:** 3% solution is effective. 3 litres of Panchagavya mixed with every 100 litres of water is suitable for all crops.

**Flow system:** The solution of Panchagavya can be mixed with irrigation water at 48-52 litres per hectare either through drip irrigation or flow irrigation.

**Seed/seedling treatment:** 3% solution of Panchagavya can be used to soak the seeds or dip the seedlings before planting. Soaking the seeds or dipping the seedlings for 30 minutes is feasible.

**General schedule of application of Panchagavya**

At Pre flowering phase	: Once in 15 days
At Flowering and pod setting stage	: Once in 8-10 days
At Fruit/Pod maturation stage	: Once during fruit/pod maturation

**Properties of panchagavya**

Panchagavya contains several nutrients i.e. macronutrients like nitrogen, phosphorus, potassium and micronutrients which are required for the growth and development of plants and also contains various amino acids, vitamins, growth regulators like Auxins, Gibberellins and also beneficial micro organisms like pseudomonas, azatobacter and phosphor bacteria etc.

**Beneficial Effects of Panchagavya**

Panchagavya is a component of crop production and it plays a crucial role in each and every component of crop management like integrated soil fertility management, integrated pest management, integrated disease management.

**Effect of panchagavya on plants**

- ✓ Plants sprayed with Panchagavya habitually produce bigger leaves and develop denser canopy.
- ✓ Branching is relatively high.
- ✓ The rooting is prolific and intense.
- ✓ The roots spread and grow into deeper layers were also observed.

**Effect of panchagavya on soil fertility**

- ✓ Panchagavya improves fertility status in soils by increasing macronutrients, micronutrients and beneficial microorganisms thus increase soil health.
- ✓ It improves water holding capacity of soils because it acts as a organic manure.
- ✓ It encourages growth and reproduction of beneficial soil microorganisms
- ✓ It increases nutrient uptake in plants and enhances plant growth.

**Effect of panchagavya on pest and diseases**

- ✓ It increases immunity power in plants thereby confers resistance against pest and diseases
- ✓ various beneficial metabolites produced by microorganisms such as organic acids, hydrogen peroxide and antibiotics, which are effective against various pathogenic microorganisms

**Effect of panchagavya in different crops****Paaddy**

- Increases tillering
- Absence of chaffy grains
- Grain weight is increases by 20%
- Improved cooking quality
- Harvest is advanced by 15 days
- Reduced percentage of broken rice during milling

**Maize, Sorghum, Barley**

- Increased plant growth
- Increased palatability
- Increases nutrients in plants
- Harvest is advanced by 10 days

**Brinjal**

- Greeny and healthy plants
- Attractive fruits
- Resistance against *Leucinodes arbonalis* (Shoot and Fruit Borer) and sucking pests
- Increased fruit size and keeping quality

**Other vegetables**

- Increase in yield
- Extended shelf life
- Vegetables with shiny skin

**Mango**

- Breaks alternate bearing and continues to fruit regularly
- Enhanced keeping quality by 12 days in room temperature
- Improved flavour and aroma
- Induces more female flower development

### General Advantages of Panchagavya

- ❖ It improves soil health and fertility
- ❖ It is used against pest and diseases
- ❖ It increases yield and quality of produce
- ❖ No chemicals are used
- ❖ Eco-friendly approach
- ❖ Cost required for preparation is less
- ❖ No special techniques is required
- ❖ It gives multiple uses
- ❖ Reduces cost of cultivation by reducing chemicals like fertilizers, pesticides, fungicides, growth regulators etc
- ❖ Farmer friendly method

### Problems, Constraints, Barriers and Difficulties in Adopting Panchagavya

- ❖ Lack of awareness about its uses
- ❖ Sometimes during fermentation contamination occurs
- ❖ Slow action
- ❖ Limited availability of its products in markets
- ❖ It encourages weed growth also as it is non selective
- ❖ Less utilisation by farmers
- ❖ It may reduce quality of the produce sometimes

### Conclusion

The increasing concern for environmental safety and global demand for pesticide residue free food has evoked keen interest in crop production using eco-friendly products which are easily biodegradable and do not leave any harmful toxic residues besides conserving nature. So it is necessary to use natural products like Panchagavya to produce chemical residue free food crops and hence Panchagavya can play a major role in organic farming.

### Reference

[http://agritech.tnau.ac.in/org\\_farm/orgfarm\\_panchakavya.html](http://agritech.tnau.ac.in/org_farm/orgfarm_panchakavya.html)